Product-Related Initiatives for the Environment

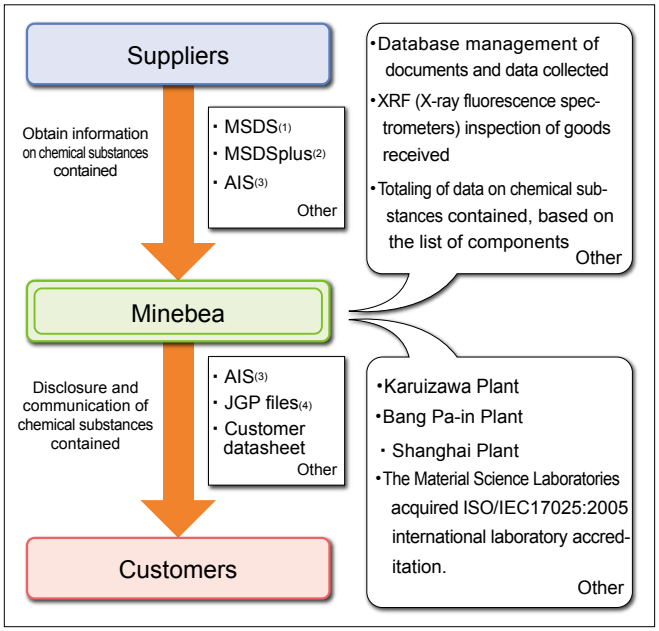
The products of the Minebea Group are used in a wide range of products in everyday life. Accordingly, we are developing products such that contribute to reducing the burden on the environment.

Philosophy on Environmentally-Friendly Products

Many of the products the Minebea Group manufactures, including bearings and motors, are assembled in our customers products as their components, and are not externally visible. However, because they are assembled as part of a variety of products, we believe that it is important for us to offer products that contribute to eliminating effects on the environment through safety, energy and resource contribution, and long life.

Management of Environment-Affecting Substances included in Products

The Minebea Group publishes the Minebea Group Green Procurement Standard, and provides customers with products (materials and components) that do not contain toxic substances. We request our suppliers to provide data and documentation for verification. Furthermore, XRF (X-ray fluorescence spectrometers) are used in the Minebea Group's inspections of goods received to confirm that they do not contain any substances subject to the RoHS directive.



Products that Contribute to Energy Conservation

Ultra-small permanent magnet (PM)-type stepping motor with high resolution(5)

Minebea has commercialized two types of world's highest resolution ultra-small permanent magnet-type stepping motors (the "PM stepping motors").

The outside diameter of 3.3 mm, despite with an ultra-small diameter, allows fine positioning of 20 steps per rotation. It aims for adoption in compact, low-profile digital products - such as high-performance cameras for cellular phones and Blu-ray Disc drives for slim-type notebook computers - that was difficult for conventional products. The model with outside diameter of 6mm achieves high resolution of 40 steps per rotation (conventional products are 20 steps) - the first time in the world as a mass-produced PM stepping motor of the same size. The 6 mm motor contributes to further heightening the functionality and added value of digital cameras, such as image stabilization through accurate positioning control, quick auto focuses and miniaturizing and silencing products by eliminating reduction gears.

Ultra-small permanent magnet (PM)-type stepping motor with high resolution (Left 3mm dia, right 6mm)

Glossary

(1) MSDS (Material Safety Data Sheet): An information communication sheet containing the information necessary for safe handling of chemical substances. (ingredients, characteristics, handling methods, emergency coping methods).

(2) MSDSPlus: A sheet recommended by JAMP (Joint Article Management Promotion Consortium) for communicating basic information on the chemical substances and compounds. Contains information not provided by the MSDS necessary for management of toxic substances contained in products.

(3) AIS (Article Information Sheet): A basic information sheet recommended by JAMP for communicating information on toxic substances contained in product molds. Compiled based on the MSDS, MSDS Plus, etc.

(4) JGP File: A standard format file defined for Green Procurement inspection by the JGPSSI (Japan Green Procurement Survey Standardization Initiative).

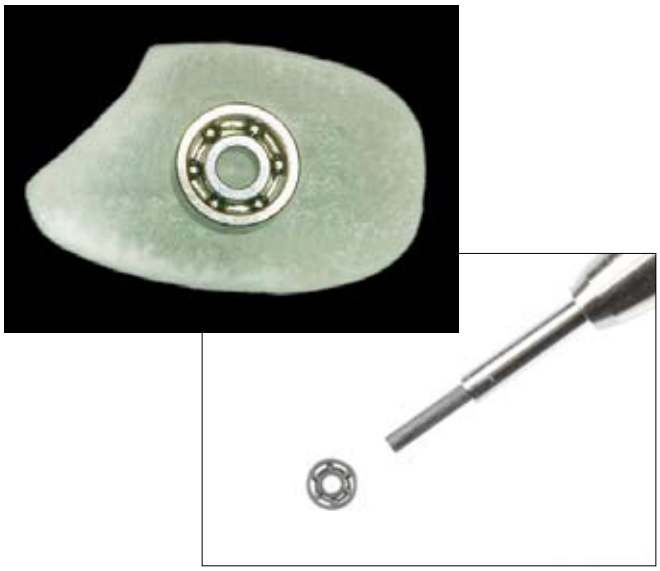
(5) Stepping motors: Stepping motors convert electrical signals into mechanical actions. The number of electrical signals generated determines rotation number. Stepping motors support not only successive rotation but also intermittent driving, variable rotation, positive rotation and negative rotation. They are used in various OA equipment, such as printers and fax machines, PC peripherals, digital devices, precision equipment, etc.

World's smallest ball bearings with ultra-small outer diameter of 1.5 mm

Minebea has succeeded in the commercialization of ultra-small ball bearings that are 1.5 mm in outer diameter and 0.65mm in thickness, making them the smallest in the world (according to our research). These ball bearings have the same pressed-steel ball bearing cage structure as normal miniature ball bearings.

While achieving further miniaturization, these ultra-small ball bearings of 1.5 mm in outer diameter have the same high precision, durability and rigidity of the products that were formerly the smallest.

This new product will be proposed for active use in the moving parts of medical devices, micro-motors, micro-machines and other fields for which the conventional ball bearings were not suited.



World's smallest ball bearings with ultra-small outer diameter of 1.5mm

Products that Contribute to Resource Conservation

Weather-resistant, long-life, high-performance AC fan motors

Minebea has commercialized a series of weather-resistant (oil proof and dust proof), long-life AC fan motors for products used in harsh environments, such as machine tools and for products used in outdoors, such as solar light generation systems and rechargers for electric vehicles.

Enhancing weather resistance in all kinds of environments, this series saves users' time and trouble required for the maintenance while at the same time contributing to lowering life cycle costs.

Development of Products that Contribute to Energy and Environmental Technologies

Research and development of magnets to improve motor performance [NEDO-subsidized project]

Motors, one of the principal products of the Minebea Group, are a component that converts electrical energy into mechanical energy. It is said that 57% of the total energy consumption of a motor is used as the driving force of the motor itself. Minebea is conducting research and development on magnets that will rapidly improve the output and efficiency of these motors.

These efforts have been selected for support from NEDO (the New Energy and Industrial Technology Development Organization) as an innovation implementation promotion service for 2010, and is receiving assistance as industrial technology that is important to Japan.

Prototype magnets made using molding equipment for research and development

Weather resistant, long-life, high efficiency AC fan motors